

**ABSTRACT**  
**A PULSE TUBE REFRIGERATOR**

The present invention relates to pulse tube refrigerators for  
5 recondensing cryogenic liquids. In particular, the present invention  
relates to the same for magnetic resonance imaging systems. In many  
cryogenic applications components, e.g. superconducting coils for  
magnetic resonance imaging (mri), superconducting transformers,  
generators, electronics, are cooled by keeping them in contact with a  
10 volume of liquified gases (e.g. helium, neon, nitrogen, argon, methane).  
In a first aspect, the present invention provides a pulse tube refrigerator  
PTR pulse tube refrigerator (PTR) arrangement within a cryogenic  
apparatus, wherein a regenerator tube of the PTR is finned. In this  
configuration the fins or baffles, are believed to increase the surface area  
15 available for distributed heat transfer from the helium atmosphere to the  
regenerator.